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ABSTRACT

This three-part report examines various measures of the equity of educational provision at the elementary-secondary and university levels and explores the applicability of these measures to an evaluation of community college finance. Part I defines educational equity, examines the differences in its measurement on the elementary-secondary and university levels, and discusses the unique character of the community college which makes a transfer of these measurement techniques problematic. This section notes that while equity at the elementary-secondary level is usually effected by state efforts to equalize educational finance and/or opportunity between various school districts, equity at the university level is usually effected by equalizing the costs of education among individual students at different income levels. Part II argues that although the provision of community college education may not seem as vital as the maintenance of elementary-secondary education, the continued societal debate over equal provision of all public services mandates that the equity of community college finance also be examined. Part III investigates how criteria for the measurement of equity at the elementary-secondary and university levels could be modified to apply to the community college. (JP)

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ON MEASURING THE EQUITY OF COMMUNITY COLLEGE FINANCE

Walter I. Garms

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ON MEASURING THE EQUITY OF COMMUNITY COLLEGE FINANCE

There has been a great deal of interest in the equity of educational provision and its burden on the providers, both at the level of elementary-secondary education, and of higher education. There has been little study of educational equity specifically at the community college level. Because the ways of going about measuring equity at the elementary-secondary level differ markedly from those used at the level of higher education, it is not clear which methods should be used for community colleges. This paper is an attempt to think through the issues involved in such an attempt.

The first part of this paper will outline the ways in which attempts have been made to define and measure equity in elementary-secondary and in higher education. The second part of the paper will ask and attempt to answer the philosophical question of where we should be concerned about equity in community college finance. The last part of the paper will assume an affirmative answer to the question of our concern with equity of community college finance and attempt to define ways in which it could be measured.

I. Defining and Measuring Equity

A. What Do We Mean by Equity in Elementary-Secondary Education?

Those who have been concerned with equity in public school finance have been concerned with wealth equalization, need equalization, and cost equalization, with the greatest attention being paid to the first of these. We can concentrate on wealth equalization by assuming for the moment that all school

districts consist of equal numbers of pupils, all of whom are normal in all ways relevant to education, and that there are no differences among districts in the costs of providing equivalent educational services. The only differences among the districts are in their ability to raise local property taxes, because of differences in property wealth in the districts. Several philosophies have arisen to deal with this situation.

The first philosophy was that the state should guarantee to each student a minimally adequate education. This was done through the flat grant or the foundation program. Any additional education provided above this minimal education was thought of as a local luxury, to be indulged in by communities with their own resources. In practice, the flat grant and foundation programs suffered from inadequate funding, so that the program guaranteed was less than minimal according to most people's definition.

The second philosophy was that the state should see to it that all children (again assuming for the moment that they are all normal) receive education of the same quality. One way to do this is to finance all education solely from state sources. Another is simply to mandate expenditure levels, while allowing the money to be raised locally. It can immediately be seen that this last provides equal resources at vastly different burdens to the taxpayers. This makes it clear that there have been two concerns in wealth equalization: equity to students, and equity to taxpayers.

The third philosophy is the exact opposite of the last one above, for it concentrates on taxpayer equity and is unconcerned with pupil equity. It simply equalizes the taxing power of school districts, so that any two districts that charge the same local tax rate will have the same number of dollars

per pupil to spend. But there is no minimum or maximum which is required to be spent, and the expectation is that different communities will spend different amounts. The mechanisms used for this are called percentage equalizing or power equalizing.

The second category in which public school finance systems have attempted to equalize is that of differences in educational need. Not all pupils are normal, as was assumed above. Some, because of various kinds of handicaps, necessitate educational programs that are more expensive than those for normal children in order to help the students achieve to the extent of their ability. Allowing for this in school finance systems has usually been done through weighting systems or cost-reimbursement systems. In a weighting system, each handicapped student is counted as more than one student for purpose of state aid. For example, if it is determined that a program for the mentally retarded should cost 1.5 times the normal program, mentally retarded students are counted as 1.5 each for purposes of state aid. Alternatively, the state may require that districts provide special programs for handicapped students, and then reimburse the district for a portion or all of the extra expense incurred in such programs.

It is easy to set up a criterion for wealth equalization (equal expenditures, or equal tax rates, or a linear relationship of revenues and tax rates) and to measure the extent to which a program meets these criteria. It is not possible to do this with need equalization because there is no general agreement on what constitutes an adequate program for each category of handicap or how much more than the regular program it should cost. This limits attempts at analysis.

The third category of public school finance equalization is equalization for differences in the cost of providing equivalent educational services among districts. A rural district spends more per student for transportation than an urban district; the urban district spends more on security and repair of vandalism. The district in the mountains has higher costs for heating and snow removal, and the very small district has higher costs for everything because of diseconomies of scale. The attempts to remedy these differences have not been comprehensive thus far, at least partially because there is yet no agreed-upon technology for determining just what these costs are. One of the most intractable, in terms of measurement, is the difference in salaries necessary to attract equivalent teachers to different districts, some of which are attractive to teach in and some not. The attempts at cost equalization that have been made are mostly in two areas. Most states help districts to pay the costs of transportation, and some states give more state aid to very small school districts than to larger ones. Where the problem with need equalization is a lack of agreement on appropriate expenditure differences, the problem with cost equalization is the absence of an adequate measurement technology.

In practice, all states provide a mixture of aid intended to compensate districts to a greater or lesser extent for differences in wealth, needs, and costs. The resulting distributions of money are difficult to analyze. Most of the attempts that have been made so far concentrate exclusively on wealth equalization.[1] By ignoring the fact that distributions of money are also intended for other purposes, they confound their analysis. For example, a state that completely equalized wealth differences but did nothing to

compensate for differences in needs and costs would appear to be more equalized than a state that did a thorough job of equalizing all three, since this would result in differences in expenditure unrelated to tax rates. Garms has tried to develop a multiple regression approach to measurement that statistically separates the three kinds of equalization so they can be examined separately.[2] It is promising, but suffers from lack of data on appropriate variables and the usual multicollinearity problems of multiple regression.

B. How Has Equity Been Measured In Higher Education?

Attempts to measure equity in higher education have a much shorter history than in elementary-secondary education. A seminal (and very controversial) work was that by Hansen and Weisbrod.[3] It set the tone for most of the work that has taken place since.[4] The approach was very different from that typically used in elementary-secondary education. They looked at California public higher education as three systems (community colleges, state colleges, and the university). They compared the subsidies received by families with children in each of these systems (through free tuition) with the taxes paid by the family with median income for that group. They then calculated the net benefits (subsidies less taxes). The problems with this analysis have been pointed out by many. Suffice it to note here the differences between this and the usual elementary-secondary analysis. Hansen and Weisbrod have taken the "district" approach used in elementary-secondary analysis, but with only three "districts", the three levels of public higher education. However, rather than asking whether expenditures per student at the three levels are equal, or whether tax burdens are equal, they have looked

at net benefits. In other words, their analysis is akin to the studies of other public programs, which concentrate on the consequences of the programs for income redistribution. Subsequent studies, by concentrating on net benefits, do the same thing. Most of them, however, have not used the "district" approach, but instead looked at the redistributional consequences on families by income classes. This puts such studies even more into the mainstream of public finance analysis.

Nelson argues that this approach has several important flaws:[5]

1. The determination of net benefits depends upon your perspective. Whereas Hansen and Weisbrod, using a "district" perspective, showed that the California system distributed money from poor to rich, Pechman's reanalysis of the same data, using an income group perspective, showed just the opposite.

2. Approaching the problem from the net benefit perspective ignores the fact that the number of non-users of higher education is much larger than the number of users, although all pay taxes. This means that the largest income redistribution is from non-users to users, so that within an income group there is income redistribution usually larger than the average redistribution among income groups. In addition, the fact that families with children in higher education tend to be near the peak of their life-cycle earnings, while the non-users who are contributing taxes and receiving no benefits are younger or older and tend to have lower incomes, confounds the analysis.

3. In order to do a net benefit analysis, it is important to have data on incomes, benefits, and taxes that are comparable, and these are seldon obtainable. One of the early studies, that by Windham, was so seriously flawed by this that the results were invalid. Later analysis with more comparable data reversed his findings.[6]

4. The net benefit approach is not consistent with other notions of equity. Nelson has shown that in a hypothetical (but reasonable) system in which taxes are progressive and higher education subsidies are inversely related to income, net benefits would be less for lower income groups than for higher ones. This is because of the phenomenon that non-users tend to be at a lower point of their life-cycle income than users. On the other hand, a different hypothetical system with regressive taxes and subsidies that increase with income could nevertheless show higher net benefits for the poor than for the rich. This is because even under a regressive tax system rich people pay more taxes than poor people. This exercise has shown, then, that a "good" system with progressive taxes and benefits inversely related to income can look bad under the net benefit approach and a "bad" system can look good.[7]

Nelson, as a result of this, suggests that the questions of benefits and costs be separated, with no attempt made to combine them. The cost, represented by the tax system, would be examined for its income redistributional conseuqences. The benefits, represented by either institutional subsidies or changes in lifetime income, would be examined for the effect upon equality of educational opportunity.

C. Comparing and Contrasting the Approaches

The approaches to defining and measuring equity can be compared on a number of dimensions:

1. Shall we be concerned with equity to students or equity to taxpayers, or both? If we are concerned with the first of these, we are concerned with somehow providing equal educational opportunity to the

students of a state. At the elementary-secondary level, this would result in an attempt to equalize educational outcomes, or inputs, without concern about the resulting tax burden. At the level of higher education, the concern would be with providing equal opportunity of access to students regardless of financial ability or minority status, or with making subsidies inversely related to income.

On the other hand, if we are concerned with equity to the taxpayer, we will be concerned at the elementary-secondary level with the question of equality of tax burdens among districts, or with equalizing the ability of districts to raise money for education for any given tax rate. Here, equality of provision of education is not at issue, but solely equity to taxpayers. At the level of higher education, concern for taxpayer equity usually results in investigations of the regressivity of taxation for higher education. Note, incidentally, that while we tend to talk of student equity and taxpayer equity in elementary education, in higher education the same concepts are usually called benefits and costs, respectively.

There is a problem here that is not always recognized. It is that it is not always possible to achieve student equity and taxpayer equity at the same time. Confusion about which goal to pursue has plagued the courts, which have often demonstrated the fact that they do not understand the difference. In elementary-secondary education, concern with taxpayer equity results in power equalizing schemes which are unconcerned with pupil expenditures, while concern with student equity leads to revenue or expenditure limits which are unconcerned with tax burdens. State school finance systems usually attempt to do some of both, which results in confusing and obscuring the issue.

In higher education, attempts to consider both at the same time have led to the net benefit studies, with the confusing results previously mentioned. We probably must consider both of the issues, but it would be wise to keep them separate.

2. Shall we be concerned with the district, or with students by income group? At the elementary-secondary level, concern has been almost exclusively with the district. The implicit assumption is usually made (although we know it is not so) that within school districts all students are treated equally, or at least equitably. Whether the concern is with students or taxpayers, the district forms the unit of analysis. At the level of higher education, the concern has been almost exclusively with students by income group. This is mainly because higher education is predominently state-supported, and there are no individual districts. However, community colleges are local institutions, often controlled by local districts with local support as well as state support. On the other hand, they differ markedly from elementary-secondary education in not having mandatory attendance and have tuition (among other things, which will be explored later). It is thus not clear whether the district or student approach is more pertinent for community college finance equity.

3. Shall we be concerned with inputs or outputs? At the level of elementary-secondary education, concern has been almost entirely with equity of inputs. While there has been some discussion of equality of educational opportunity as constituting equality of results, the conceptual and practical difficulties of measuring this have limited study to inputs. At the level of higher education, on the other hand, there have been a number of attempts to

measure benefits in terms of increased lifetime incomes, and then to relate these to such things as poverty or minority status, or to income redistribution. Here, the answer to which question we should be concerned with seems clearer. Data on lifetime incomes are completely inadequate for the kind of research we are interested in. They represent an attempt to construct longitudinal projections of income from present cross-sectional data. In addition, there are no separate income data on those who attend community colleges.

Finally, the tremendous diversity of community college programs means that average data will tell us little about outcomes that is of policy help. Thus, although conceptually outputs should be our concern, we are constrained by the data to consider inputs almost exclusively.

D. Difficulties in Applying Elementary-Secondary Equity Concepts to Community College Finance

There are a number of reasons why attempts to apply the principles of equity used with the public schools to community college finance run into difficulties. The first has to do with the fact that community colleges are very different from elementary-secondary schools. For example:

1. Elementary-secondary schools have a rigidly defined clientele; community colleges do not. The clientele for elementary-secondary schools is all individuals between the ages of (roughly) 6 and 18 who are not enrolled in private schools and who live in the geographical area of the school district. Attendance at elementary-secondary schools is mandatory. By contrast, there is not mandatory attendance at community colleges; students make their own decisions on whether to attend. The potential clientele is all adults

within the geographical area served by the community college, but the actual clientele is only a small percentage of that. On the other hand, students from outside the geographical area of the college often attend the college, a situation rare in elementary-secondary schools. Finally, there are many part-time students in community colleges.

2. Elementary-secondary schools have great similarity in curricular offerings; community colleges differ widely. Legislatures mandate the offerings of elementary-secondary schools to a very great extent, and one can expect to see similar curricula at a given grade level all across the United States. While community colleges tend to offer courses that fit into broad categories (academic, vocational, community interest), the courses offered and the relative balance of them are substantially different from one college to another. In general, community colleges tend to offer courses they think will attract students, and the number of students is as much a result of the college offerings as the volume of offerings is of the number of students.

3. Equity in elementary-secondary school finance is couched in terms of differences in treatment of students in different districts, with the implication that all similarly situated students within a single district receive the same treatment. Differences in treatment are then compared with differences in socioeconomic characteristics of the districts. While it is a gross oversimplification, this approach has been dictated by the fact that only district-level data are usually available. However, this approach to community college equity would stumble over the fact that usually not all of the geographical area of a state is covered by community college attendance

areas and that students often attend community and other colleges outside their own attendance area.

4. Elementary-secondary finance has concentrated on the fact that communities with different tax bases are able to raise different amounts for education. This is not true in all states for community colleges, for not all of them feature local financial support as part of their fiscal package. Where there is local financial support, it may come from a variety of taxes (as in New York) rather than from only the local property tax, complicating analysis of local ability to support education.

5. Nowhere in the United States is there tuition for the public elementary-secondary schools. However, community colleges in all states except California charge tuition. (California charges some small fees.) The amount of tuition often varies with the course or program undertaken. In addition, financial aid is offered, which means that the amount of tuition varies among students. This raises the question as to whether an analysis by district (rather than by student) is appropriate.

6. In contrast with the elementary-secondary schools, there are public educational institutions that compete directly with the community colleges. For example, the same vocational courses offered by a community college may be offered in the same geographical area by a vocational-technical institute, a state college, and several local evening high schools. Some of the potential clientele may be eligible to attend any of these institutions, while others may be restricted to one or more.

All of these differences between community colleges and elementary-secondary schools make uncritical application of equity concepts from the

latter difficult and potentially misleading.

E. Difficulties in Applying Higher Education Equity Concepts to Community College Finance

On the other hand, trying to analyze community college equity in the ways usually used for higher education runs into different difficulties. Those who are interested in the fact that there are a large number of community colleges in a state, each serving a defined geographical area, would be upset with an analysis that talks about benefits to people of different income levels without addressing the extent to which funding of the various colleges affects this. Analysis of income redistribution without reference to tax rates in the community college districts runs into similar difficulties in providing policy guidance. In connection with this it is interesting to note that there have been no suits (so far as I know) seeking to declare regressive taxes unconstitutional, although the school finance lawsuits have used differing school tax rates (particularly in connection with differences in local taxpaying ability) as one basis for declaring school finance laws unconstitutional.

Within higher education itself, there are many obstacles to an examination of equity to students. This holds true whether it is an interinstitutional analysis among community colleges or an intersectoral analysis among community colleges and universities. These obstacles are present whether the examination concerns access, revenues, tuition or programs. Some of these hindrances are as follows:

1. Research is an important function of many universities and 4-year colleges. At most of these institutions, research supports the teaching function and visa versa. In most community colleges research efforts represent an insignificant portion of total activities within the college. While recognition of research activities does not represent much of a problem in an equity analysis among community colleges, it does present a major consideration in dealing with an analysis between universities and community colleges.

2. There are substantial programmatic differences between community colleges and universities. The varied curricula of community colleges include academic, vocational, adult and community service programs. The proportion of these programs as a percentage of total program offerings may range greatly among community colleges in the same state. Whereas one community college may be primarily engaged in educating students in the first two years of college academic work, another may find its principal role as serving as an area vocational-technical center. On the other hand, nearly all universities are engaged in offering academic programs. Vocational and other types of programs found in community colleges are, at best,minimal activities in universities.

3. Differences in funding sources present difficulties in an intersectoral analysis of revenues per student. In most states, local property taxes represent an important revenue source for operating community colleges. Universities, however, do not have this revenue source, and consequently, have a much greater reliance on state funding. Also, universities receive substantially more federal funds and collect income from endowment funds which are practically non-existent in community colleges.

Tuition differences may further complicate an equity analysis of revenues per student.

4. Admission requirements between universities and community colleges may be quite diverse. There are probably valid reasons for these differences, but it is difficult to quantify these reasons in examining access. Most community college systems operate an "open door" policy and some do not require even a high school diploma for admission (e.g., California). Universities often require minimum scores on college board examinations and high school grade point averages or an associate arts degree before admission is granted.

In summary, then, the problem with the uncritical use of elementary-secondary equity concepts for community colleges is the possibility that they are inapplicable. The higher education concepts, on the other hand, may be applicable but may not give appropriate policy guidance.

II. Should We Be Concerned About Finance Equity in Community Colleges?

Given the problems listed above in trying to apply concepts of equity to community college finance, it is worth asking whether it is worth the bother to do so. The school finance lawsuits have concentrated on two legal concepts in declaring existing school finance systems to be unconstitutional. One is that education constitutes a fundamental interest, the equitable provision of which therefore deserves the strict scrutiny of the courts. It is conceded to be fundamental at the state level (but not at the federal level) because it is mentioned as a state responsibility in every state constitution, and because a certain minimum education is deemed necessary to the functioning of adult citizens. The fact of mandatory attendance

emphasizes this. It would be difficult to justify requiring children to spend a large part of their formative years studying a required curriculum if it were not considered a primary interest of the state rather than just of the individuals receiving the education.

The second legal concept involved in the lawsuits is that there has been an invidious discrimination among groups of students in the provision of education. Students have been classified into groups according to a suspect classification (race, or wealth, for example), and the groups treated differently. Evidence for this is that school districts which differ in their ability to raise money for education also differ demographically. The result has often been to condemn children of minority races or of poor parents to an inferior education.

The existence of a fundamental interest or the use of a suspect classification triggers a rigorous legal test known as strict scrutiny, in which the governmental agency must show that a rule or procedure is necessary and that there are not alternate methods to use that would be more equitable. If strict scrutiny is not brought into play, the government must only show that what it is doing is reasonably related to some legitimate governmental purpose. It is extremely difficult to knock down any rules or procedures using this latter criterion, regardless of how inequitable they may appear to be.

It appears that it would be difficult to allege that a community college education is a fundamental interest as is elementary-secondary education. It is not required of all people, and it is not made available to all citizens of a state. It might be possible to show that a suspect classification is being used in allocating money to community colleges, if the offerings of

community colleges that serve areas with many poor or minority people can be shown to be significantly poorer than those that serve affluent white areas. If the suspect classification argument cannot be sustained, it would probably be extremely difficult to mount a legal attack on the equity of community college finance.

Even if a legal challenge would be difficult, it might be worthwhile to try to make community college finance more equitable (assuming that it can be found to be inequitable) through the legisiative process. It is, however, an open question whether, philosophically, the attempt should be made, and where such an attempt would lead. For example, should a state see to it that the resources of communities are equalized in such a way that all communities are able to build and maintain equal playground facilities for children? Should communities in addition be required to provide such facilities on an equal basis? It seems probable that most people view such facilities and such recreation as something that should not come within the purview of the state. Instead, local political subdivisions should be allowed to provide these to the extent they wish. At least, this has been until now the conventional wisdom. Yet these same playground facilities, if provided by school districts, would have to be provided on an equal basis (or communities made equally able to provide them) if the concepts of equity described above were applied. Taking the analogy closer, how about library facilities provided by the community? These are clearly educational (and also recreational). Should the concepts of equity be applied to them? If the answer to the questions regarding libraries and recreational facilities in affirmative, at what point do we stop? Should health services be made available to all on an equal basis?

Many people would say yes, and there have been bills introduced into Congress for this purpose. What about public transportation? Police and fire service? Garbage disposal? Following all of these ideas out to a logical conclusion implies full state funding of all local government functions, or at least intergovernmental transfers of money that would accomplish the same thing. However, this inevitably leads to greater state involvement in the use of the funds so granted, and this results in an erosion of local control.

It can be seen, then, that principles of equity and local control tend to conflict with each other. In the case of voting rights and criminal proceedings, it has been decided by the U.S. Supreme Court that equity must have precedence. In the case of elementary-secondary education, state courts are split on the question, with the majority apparently favoring equity over local control. On the other hand, no court has yet ruled that parks, libraries or garbage service must be provided on an equal basis among governmental jurisdications.[8] The question has not arisen with public colleges and universities because they are entirely state-supported. Community colleges, however, have many of the characteristics of both elementary-secondary schools and of universities. It is not clear which they should be treated like.

Nelson has also examined the pros and cons of concern with equity in community college finance. She states the following:

1. Because community college districts are larger than school districts, the differences in local fiscal ability will not be as pronounced. In addition, community colleges are usually not as reliant on local financing as are school districts. Both of these facts imply that the size of disparities in expenditures and tax rates would be less for community colleges

than for school districts.

2. Community colleges are not like school districts for the reasons already enumerated above.

3. Nevertheless, "Although the differing of elementary-secondary and community college education may suggest that interdistrict equity is not as vital at the higher level as it is at the lower and that it should not dominate equity discussions in higher education, there are still several reasons to consider it desirable (and perhaps to incorporate it, as Garms suggested), into an ideal financing pattern.

"A. The state's role whatever it is, should not exacerbate wealth-related inequities. This could easily occur, for example, if a high minimum local contribution were a condition for receiving any state support, or if the amount of state funds received rose with the size of the local contribution.

"B. If low-wealth districts were compelled to charge higher tuitions than their more affluent counterparts, particularly if their educational offerings were lower in quality, the residents of these districts would face an additional barrier to higher education.

"C. If the state legislature thinks that current state funding formulas, such as minimum foundation funding, are equalizing resources available for community college education, but indeed they are not succeeding, the problems with the current formulae should be pointed out and alternatives that would succeed should be substituted."[9]

The implication from this discussion is that equity in community college finance may not be the burning issue that it is in elementary-secondary finance,

but that it deserves study with the end in view of improving the situation if it appears warranted.

III. How Shall We Define and Measure Equity in Community College Finance?

As mentioned previously, the analyses of equity in elementary-secondary finance have all used data on the district level, rather than on the level of the individual student. While weighted averages may be compiled using the number of students in the district as a weight, the assumption is still made that all students in a given district are treated the same. Let us see whether these equity concepts can be applied to community colleges. The difficulties with doing so have been mentioned earlier. Here we will make some assumptions about community colleges that, if true, would allow inter-district equity principles to be applied. Then we will try relaxing each of the assumptions to see what adjustments would be necessary in our equity concepts or measures (or whether relaxing the assumption is fatal to the analysis). The assumptions are as follows:

1. There are no differences in student needs for programs with different costs. That is, while there may be different offerings at the various community colleges, the average cost per FTE student at each college would be the same if each similar program or course were funded at the same level in all colleges.

2. There are no geographical differences in the cost of providing similar educational programs among the colleges.

These first two assumptions are the same ones made (often implicitly) in elementary-secondary analyses in order to concentrate on the effect of wealth differences.

3. There is neither tuition nor fees.

4. There is a local tax contribution to the operation of the college, which consists entirely of property tax revenue.

5. Regardless of the percentage of the population that is enrolled in the college, the college is enrolling all those who desire a community college education and offering them approriate courses. The expenditures per course may not be the same among colleges -- that is what we are interested in finding out. But this assumption enables us to say that the college has a defined clientele and is serving it.

6. Community college districts cover all geographical areas of the state, and there are no interdistrict transfers of students.

With these assumptions we have made the community college districts sufficiently like the elementary-secondary districts that it should be possible to apply the same principles of equity to them. First, let us try the concept of fiscal neutrality.

The principle of fiscal neutrality is satisfied if two colleges that levy the same tax rate have the same number of dollars per student to spend. One would correlate equalized tax rates and either current expenditures per FTE student or state and local current revenues per FTE student. The various statistical techniques for making such a measurement would be borrowed directly from elementary-secondary finance.

Now, what happens if we relax the assumptions? The first says that there are no differences in student needs for programs with different costs. We have the same problem in elementary-secondary finance, where some districts may have higher concentrations of expensive-to-educate students than others.

The usual approach (aside from ignoring the whole problem, which is also frequently done) is to weight the students according to some a priori notion of how much the various programs should cost. One could do the same thing here. Florida, for example, classifies community college programs into 31 cost categories, with weights (as compared to the cost of some program whose cost is arbitrarily defined as 1) ranging from less than 1 to more than 2.5 The number of FTE students in each cost category is then multiplied by the weight for that category, and the result is a number of weighted FTE students in the college. Given adequate data, the same thing could be done in other states, with the number of weighted FTE students becoming the divisor in calculating revenue or expenditure per student. This of course is abdicating the question of whether the differences in program costs are appropriate measures for funding purposes, but we presently have no better guidelines than average practice.

The second assumption is that there are no geographical cost differences in the provision of education. We currently ignore this factor in elementary-secondary education analyses because there are no adequate data on such differences. For the same reason, it is probably necessary to do the same thing with regard to community college analyses.

The third assumption is that there are no charges to students. This is not true in any state, for even California charges some student fees. If we are interested only in the question of fiscal neutrality on a district basis, the logical thing to do is to treat the tuition and fee income as if it were local tax income. The tax rate necessary to raise this amount of income would be added to the already existing tax rate to get the total local

tax rate to use in the analysis. This amounts to an assumption that students and taxpayers are one and the same, which is not quite true, but may be a good enough approximation for the purposes of this particular type of analysis.

The fourth assumption is that there is a local tax contribution contribution consisting entirely of property tax revenue. In some states (New York, for example) there is a local appropriation by a sponsoring governmental agency, but this may come from other tax sources than from the property tax. There are two possible solutions here. One is to do as with tuition, and calculate the property tax rate necessary to raise the amount of the local contribution. The alternative is instead to treat all local money, both taxes and tuition, as if they are raised from a local income tax at a uniform rate, and see what income tax rate would raise this amount of money. This assumes that there are data on income for the districts, which is apt not to be true.

If there is no local revenue, the question of fiscal neutrality is moot. However, even in states where there is no local tax contribution, there is always tuition, and this can be treated like local tax contributions, making it possible to apply the fiscal neutrality test.

The fifth assumption is in many ways the most difficult one to relax. Suppose that community colleges do not serve all of their potential clientele. Suppose some have made a conscious decision to serve a small number of students well, while other colleges have made a decision to serve all who wish it, even though they must offer an inferior product to each. Using FTE students as the divisor results in the college which doesn't serve all students looking as if it is in a rich district (in terms of resources per

student), while the other college is in a poor district. A possible way around this is to do the analysis not on a per student basis, but instead on a per capita basis. The problem with this approach is that it makes the implicit assumption that all districts have the same need for community college education, when this is almost certainly not so. Because the student is not used in the analysis, it is not possible to use program weights, and so the per capita analysis assumes that all districts have the same mix of program needs. In addition, districts may differ in the percentage of the population needing community college education because of demographic differences or because of the fact that other public or private colleges exist in the area. The per capita analysis ignores this. Thus, the per capita analysis assumes that "need" for community college education is in constant proportion to the population (both in number of students and program mix), while the per student analysis assumes that there is a defined clientele all of whom are being served. Both of these appear to be shaky assumptions, yet there does not appear to be another basis on which to make this fiscal neutrality analysis.

If we wish to make a fiscal neutrality analysis (or, for that matter, as will be shown, any analysis at the district level) it appears critical to determine the extent to which there is truth in the assumption that the community colleges are meeting all of the needs of the community. If that assumption is met, a district analysis on a per student basis is reasonable. It is not completely clear how to go about testing this assumption. If the money received from the state is substantial, and is enrollment driven (as is true in most states), it will tend to push the college in this direction. That is, it will be more likely that the college will cater to a large

number of students at a low cost per student than to a smaller number at a higher cost per student. If the college is facing a declining enrollment situation this is apt to be doubly so, for they will do everything in their power to maintain enrollment. But in many states community college enrollments are still increasing. In addition, how can one make an assumption that all of the demand is being served in a state where the community college enrollment, in proportion to the population, is one tenth of what it is in California? The prospects for showing that this assumption holds appear dim. The opposite assumption, on which the per capita analysis is based, that the number of students in proportion to the population, and their mix of program needs, are constant across districts, is clearly not a valid one. Thus we are on the horns of a dilemma. Possibly one could do the analysis both on a per student and on a per capita basis, and see whether both analyses point in the same direction. If so, one might be able to make some reasonable statements. Alternatively, one might wish to view community colleges as being like libraries, available to citizens whether or not they use them. In that case, the per capita analysis seems quite appropriate.

The last assumption is that all of the geographical area of a state is covered by community college districts and there are no interdistrict transfers of students. If there are uncovered areas and no interdistrict transfers, the people living in that area can be said to suffer from absolute deprivation of a community college education. In the case of elementary-secondary districts, it was mentioned by the U.S. Supreme Court in an aside to the Rodriguez case that absolute deprivation of an education (such as might exist among the very poor if there were tuition in the public

schools) would probably constitute a violation of the Fourteenth Amendment.[10] Even if students living in uncovered geographical areas are allowed to attend a community college elsewhere, there is still absolute deprivation in many cases. The reason is that the community college is supposed to serve the community. If a student must leave the community to get a community college education, the community is not being served. There are many people who would attend a community college nearby who would not be able to attend one some distance away.

The matter of interdistrict transfers complicates the analysis in another way. In some states there are substantial numbers of interdistrict transfers of students because the program they desire does not exist in their local college but does exist in another one. This is usually handled fiscally through a chargeback from the college of attendance to the college of residence. To do a proper analysis, then, students who are attending a college outside their own district should be allocated back to the college in the home district, since their costs of attendance are being allocated to the home district. We must then be careful also not to include chargebacks in the income of the receiving district. If we are using expenditures rather than revenues as the measure, we must subtract the chargeback revenue from expenditures, or else we will be showing chargebacks as expenditures for both the sending college and the receiving college.

Fiscal neutrality is only one district-level equity principle that might be used. As mentioned previously, it is primarily a taxpayer equity principle, rather than a pupil equity principle. In searching for pupil equity, one could use the principle that revenues or expenditures or

subsidies per pupil should be the same in all districts. Let us again start with the same six assumptions and relax them one by one. Most of the changes that would be made in the analysis are the same as would be made under the fiscal neutrality analysis. If we relax the first assumption, that there are not differences among districts in student program needs, the appropriate way to handle this is through a weighting scheme. The second assumption must continue as an assumption because there are not adequate data to do otherwise.

The third assumption, that there is no tuition and no fees, is not necessary if we are only investigating equality of revenue or expenditures. Here we are not concerned with equity to those who must pay the costs, but only equity in terms of money to be spent on those who consume the education. The fact that in the case of tuition these are the same people is unimportant to this particular analysis. (This makes it clear, then, that such an analysis is not sufficient in itself with community colleges, although it may be for elementary-secondary education where tuition does not exist.) On the other hand, if we are interested in equity of subsidies, it is precisely this relationship of tuition and student aid that concerns us.

The fourth assumption, that there is a local tax contribution to the operation of the college, is also unnecessary to this analysis. We are not concerned here with taxpayer equity, and differences in tax rates (or the fact that there is no local tax rate) are of no importance.

The fifth assumption, that colleges are serving all who have a need to be served, is difficult to relax under this equity standard as it is under the fiscal neutrality standard. As before, one could try to get around it by using a per capita analysis, with the same problems. Again, perhaps

the best we can do is to use both per student and per capita analyses and see if they point in the same direction.

The last assumption, that the districts cover all geographical areas and there are no interdistrict transfers, can be covered in the same way as it is for the fiscal neutrality analysis.

A third type of analysis at the district level would be to ask whether there are equal offerings in different distrricts. This is a reasonable question to ask if the six assumptions stand. It is roughly equivalent to asking whether there are equal expenditures, except that to the extent to which there are differences in the cost of providing equivalent education (assumption 2), equal offerings may be a better measure than equal expenditures. A caveat to this statement, however, is that it is necessary to develop standards of measurement of offerings. If all of the assumptions hold, one could simply compare the number of courses offered in the college, although in some cases this might be difficult because what one college puts in two courses another offers in one. In any case, the real problem begins when we relax the first assumption, that there is an equal mix among colleges of student needs for programs. If this is not true, how do we compare offerings? One college may offer extensive vocational subjects, while another concentrates on college transfer programs. Only if colleges in areas serving the rich consistently offer more courses in all areas than do those in areas serving the poor can we make firm statements about offerings. It appears that using offerings as an equity criterion would be much rougher than the others (in terms of lack of precision of the measure), although it might be a useful supplement to the other measures.

Relaxing the other assumptions has the same effect on this criterion as it does on the equal expenditures criterion, and it is unnecessary to discuss them further here.

One further criterion has been suggested (but hardly ever applied) in elementary-secondary finance. It is that there should be equal outcomes. This is difficult in elementary-secondary schools because of the large effect of heredity and out-of-school environment on pupil performance. That would also apply to community colleges, but in addition the variety of courses and the lack of standardized tests would make such a measure worthless. Use of lifetime incomes has already been dismissed for several reasons. Thus outcomes appear unusable as a criterion.

Up to now we have been considering measures of equity which use the district as the unit of analysis. When applied to community colleges they suffer from problems that do not exist when they are applied to elementary-secondary districts. It may be that the more appropriate focus for an equity analysis in community colleges is the individual student. Basic to such an analysis is the ability to divide individual students into groups based on income or minority characteristics and to gather data on their individual programs. The assumptions made in the last section would be unnecessary in this analysis. The class of poor students would presumably be composed of at least some students from each of the colleges in the state, and the characteristics of individual colleges would be unimportant. We might instead ask such questions as these:

1. Is the tuition paid (net of student aid) commensurate with income? That is, do poor students pay lower tuition on the average than rich

students? What is the spread: what percentage of poor students pay a higher tuition than the average rich student?

2. Do poor or minority students have at least as much spent on them as rich or majority students?

3. Do poor or minority students attend in the same proportions as do rich or majority students?

4. Are community colleges located in such a way that poor or minority students have to travel longer distances to get to the college?

Measuring equity by means of such methods has an appeal in that it does not depend upon the assumptions necessary for the district-by-district analysis. On the other hand, it necessitates pupil-by-pupil data on such things as income, ethnicity, courses taken, average college expenditure per pupil for each course, and amount of financial aid. All of this information is voluminous, and may be unobtainable. In addition, it might prove less useful from a policy guidance standpoint, although this is not at all certain.

In terms of intersegmental analysis of equity between community colleges and universities, little work has been done. There are two basic reasons for the lack of investigative efforts into this area. The first reason is a failure to answer (or even address) the question of whether intersegmental equity is a desirable goal. The second is the inability to accurately assess and measure differences between the sectors due to definitional and programmatic reasons.

As mentioned previously, the research function of universities enables these institutions to achieve a certain uniqueness. The fact that research and teaching are so closely wedded makes it difficult to separate one from

the other. Research and programmatic differences between community colleges and universities may be somewhat reconciled by focusing on the academic programs in the freshman and sophomore years of study. The taxonomy of courses adopted by the National Center for Higher Education Management Systems provides a base of comparability. Higher education systems which have adopted this classification system have an opportunity for both interstate and intra-state comparative analyses. In fact, some states have broken the classification system down further, as in Florida where a state-wide Common Course Numbering System has been implemented for both public and private higher education.

N.C.H.E.M.S. has also published cost finding principles which provide a standard mechanism for cost analysis. The method allocates faculty and support costs to various activities such as instruction, research and community service. Of course, there is the element of subjective decisions in the allocation process which means that comparability will be at best approximate.

In states which do not have a uniform method of cost analysis and program structure for higher education, it would be a difficulty (if not impossible) task to conduct an accurate equity analysis of expenditures and programs. It can be anticipated that the average cost per student in a major research university will greatly exceed the average cost per student in a community college which offers only academic transfer programs. Even if cost and program differences are reconcilable, definitions and units of funding between universities and community colleges may not be consistent.

Should instruction in similar courses in community college and a university be funded at the same value per student? If the question can be answered in the affirmative, listed below are some of the assumptions that

were made in arriving at this decision:

1. The research component was separable from the instructional component.

2. It was possible to identify the similarity of courses and course costs were accumulated by comparable methodologies. In like manner, it was possible to identify all the revenues for similar courses.

3. There is no need to recognize the additional cost of university faculty who generally possess more academic credentials and have more years of service than do their counterparts in community colleges.

4. There is no difference in the quality of instruction, and outputs are comparable.

5. The additional cost of special university facilities, which are generally not found in community colleges, does not need recognition or will be funded in a component other than instruction.

In an intersectoral examination of equity it is appropriate to examine tuition differentials. As pointed out by this author elsewhere, it is not clear that low tuition is a major reason for deciding to attend community colleges.[11] To effectively argue for equity in intersectoral tuition, it must be shown that any differential represents a barrier to access. Most need-based student aid programs are calculated on a "total need" basis. Since universities generally charge higher tuition, a student attending a university would have a greater total need which in effect reduces or eliminates the tuition differential.

Admission requirements may represent a barrier to student choice. Universities tend to have higher academic requirements and sometimes

limitations on the number of students who can be enrolled. Consider the example of two students who plan to enroll in identical courses. One is admitted to the university because he is an "A" student, but the other must attend the community college because he is a "B" student. If this type of selective admission procedure violates the principle of equity, then the university community should justify the need for it.

Clearly, more research is needed on intersectoral equity to students. These efforts should address the role and purpose of higher education institutions in our society before arriving at any definite conclusions on the desirability of equity. Expenditures per student, tuition, and student choice of institution represent potential measures for investigation.

In conclusion, this paper has sought to think through the issues involved in measuring equity in community college finance. There are many difficulties in applying the equity concepts of either elementary-secondary education or higher education to community colleges. Undoubtedly, we should be concerned about equity in community colleges, however, we have not yet developed agreed upon measures for doing so.

Footnotes

1. NEFP, Rand, Federal range ratio, School Finance Coop.
2. Garms NIE study
3. Hansen and Weisbrod
4. Windham, etc.
5. Nelson paper
6. Windham study, Nelson reanalysis
7. Nelson paper
8. Hawkins vs. Shaw, 461 F.2d 1171 (5 Cir. 1972) Mississippi
9. Nelson paper
10. Rodriguez vs. San Antonio
11. Garms, Financing Community Colleges.

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